

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-14 (cancelled).

15 (new). A process for the production of an olefin, said process comprising passing a mixture of a hydrocarbon and an oxygen-containing gas over a catalyst capable of supporting combustion beyond the fuel rich limit of flammability, said catalyst comprising a catalytic component and a metallic support wherein the support is a metallic structured packing comprising a multiplicity of open-ended channels and which has been loaded with a non metallic coating.

16 (new). A process as claimed in claim 15, wherein the catalyst component comprises a Group VIIIB metal.

17 (new). A process as claimed in claim 15, wherein the metallic support is selected from FeCrAlY, NiCrAlY, CoCrAlY, Ni-Chrome, Inconel and Monel.

18 (new). A process as claimed in claim 15, wherein the metallic support is in the form of a foam having a pore size in the range of 10 pores per inch (ppi) to 100ppi.

19 (new). A process as claimed in claim 15, wherein the metallic support is in the form of a monolith having between 2000cpi (cells per inch) to 5cpi.

20 (new). A process as claimed in claim 15, wherein the metallic support comprises a series of blocks or layers that tessellate together to leave no gaps.

21 (new). A process as claimed in claim 15, wherein the non metallic coating is a ceramic material selected from alumina, silica-alumina, a combination of alumina and mullite, lithium aluminium silicate, cordierite, silicon carbide, zirconia toughened alumina, partially stabilized zirconia, fully stabilized zirconia, spinel, chromia, titania, aluminium titanate, or any combination of the above.

22 (new). A process as claimed in claim 15, wherein hydrogen is co-fed with the hydrocarbon and oxygen-containing gas to the reaction zone.

23 (new). A process as claimed in claim 15, wherein a non catalytic resistance zone is located upstream of the catalyst.

24 (new). A process as claimed in claim 15, wherein the ratio of hydrocarbon to oxygen-containing gas is 5 to 16, times the stoichiometric ratio of hydrocarbon to oxygen-containing gas required for complete combustion of the hydrocarbon to carbon dioxide and water.

25 (new). A process as claimed in claim 15, wherein the process is operated at a pressure of between 10-30barg.